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- (71) Applicant (for all designated States except US): **PRES-IDENT AND FELLOWS OF HARVARD COLLEGE**
[US/US]; 17 Quincy Street, Cambridge, MA 02138 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **GYGI, Steven, P.**
[US/US]; 4 Stockbridge Road, Foxboro, MA 02035 (US).
JUNMIN, Peng [US/US]; 32 Perthshire Road, Apt. 1,
Brighton, MA 02135 (US).
- (74) Agent: **REES, Dianne, M.**; Edwards & Angell LLP, P.O.
Box 9169, Boston, MA 02209 (US).
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(54) Title: DETECTION AND QUANTIFICATION OF MODIFIED PROTEINS

(57) Abstract: The invention provides a method detecting and quantifying proteins by mass spectrophotometric analysis using peptide internal standards and provides a highly sensitive way of detecting protein modifications. In one aspect, the invention provides a method for determining a site of ubiquitination in a polypeptide and for evaluating ubiquitination targets in a population of polypeptides. In this way, a proteome ubiquitination map can be obtained which comprises information relating to the ubiquitination states of a plurality of cellular polypeptides. Maps can be obtained for a variety of different types of cells and cell states. For example, ubiquitination targets in normal and diseased cells can be evaluated. Preferably, the map is stored as data files in a database. Individual ubiquitinated polypeptides identified can be used to generate molecular probes diagnostic of a cell state and/or can serve as targets for agents that modulate one or more cellular processes.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/07527

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : GO1N 33/573, 33/53

US CL : 435/7.4, 7.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/7.4, 7.1; 436/518

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Biosis, Medline, Caplus

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P ---	US 6,465,199 B1 (CRAIG et al) 15 October 2002 (15.10.2002), see summary, column 13, lines 14-39, column 14, lines 56-67, column 28, lines 40-67, column 36, lines 25-67.	1-2, 7-10, 12, 29, 42, 44
Y,P X --- Y	PIOTROWSKI, et al. Inhibition of the 26S Proteasome by Polyubiquitin Chains Synthesized to Have Defined Lengths, Journal of Biological Chemistry, September 1997, Vol. 272, No. 38, pages 23712-23721, see abstract, see page 23712, column 2, see page 23719, column 2, see entire document.	1-2, 8-9, 17, and 33 ----- 3-7, 10-16, 19-32, 34-44

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

Deborah A Davis

Telephone No. (703) 308-0196